

I claim:

1. A main frame of a customizing pack carrier for any pack having attachment means on its body comprising:

- a) a frame face made up of (one or more members) dimensionally arranged to support <sup>a</sup> face of said pack when said face is leaned against it,
- b) at least one temporarily retaining means on said face capable of being temporarily linked to said attachment means on said pack,
- c) wherein location of said retaining means is further arranged (by some means to approximate as closely as possible location of said attachment means) when a face of said pack is positioned against said frame,

whereby when (the top) of said main frame is dimensionally within a person's arm reach and is mounted on casters, it becomes a pack carrier for walkers, whereby when said main frame is dimensionally about a pack's height and is mounted on a bike, it becomes a pack carrier for upright and recumbent bike riders, and whereby when said main frame is incorporated in a scooter, it becomes a pack carrier for scooter riders, whereby the resulting loaded pack carrier is a neat looking unified combination comparable to that of commercially available wheeled packs but is more accommodating to the user's tastes and needs (vis-à-vis) the unattractive resulting combination when using dangerous and easily misplaced elastic cords currently used in conjunction with existing luggage carriers, whereby a wide range of sizes and types of inexpensive packs can be customized to said carrier by simply adding to any said pack supplemental attachment means where there are not any at locations that approximate the location of said retaining means on said carrier thus obviating the expense and inflexibility of the usually small customized permanent luggage and carrier combinations without sacrificing looks, convenience and adequate luggage capacity.

2. The main frame in claim 1 wherein one location of at least one retaining means arranged for a regular pack comprises:

- a) point on main frame proximal to a pack's handle strap,

- b) point on main frame proximal to the upper end of a pack's padded shoulder straps when said handle strap is not used,

whereby most packs or bags have a centrally located attachment means in the upper portion of a face of its body thereby obviating the use of supplemental attachment means at this location.

3. The main frame in claim 1 wherein locations of retaining means comprise:

- a) point on main frame proximal to the lower end of first of two shoulder straps,
  - b) point on main frame proximal to the lower end of second of two shoulder straps,
- whereby said location of attachment points are strategic to effectively anchor the ever popular backpack onto said main frame by utilizing just the straps that are inherently part of it, whereby the body of a wide variety of bags can easily be affixed with supplemental attachment means that approximate said locations of retaining means.

4. The main frame in claim 1 wherein said retaining means are selected from a group comprising:

- a) rotary transmission means comprising a protrusion where a strap-like attachment affixed on a pack can be wound around, wherein said protrusion is part of a user-controlled rotational segment whose rotation causes said strap-like attachment to draw the pack closer towards the main frame as is necessary after which further rotation is deterred by some means,
- b) clamping means comprising one or more clamps of size capable of enclosing one or more straps of said pack, said strap having a topside and an underside wherein the clamping pressure on said strap can also be increased or decreased accordingly by some means to accommodate and firmly secure said strap onto or release said strap from said clamp,
- c) hook 122 or equivalent, whereby said hook retains effectively in conjunction with minimum additional provisions like an obstruction or lump, or a loop to a part of a backpack's original shoulder straps or affixed to a pack that does not have any,
- d) cleat 316 or equivalent around which a flexible strap can be wound, whereby said cleat provides means to neatly eliminate slack on said strap in addition to providing a reliable and secure attachment of said strap to said main frame,
- e) other fastening ware including hooks, rings, snap hooks, buckles, press-release buckles, clips, latches, buttons, hook and loop fasteners, ratchets,

f) stationary knobs, protrusions, slits, and cavities,

whereby the selection of retaining means includes not only those conveniently adaptable to mate directly with strap-like and looped attachment means affixed on a pack but also includes those commercially available mating fasteners with one mating member mounted on the frame and the other member affixed on the pack.

5. The main frame in claim 4 wherein the rotation of said protrusion in selection (a) is deterred and allowed by means selected from a group comprising of:

- a) rotating a member of said segment clockwise or counterclockwise about an axis normal to the direction of its strap-drawing rotation, wherein said clockwise rotation of said member increases contact between a member of said rotational segment and a section of said frame so that rotation is deterred, wherein said counter-clockwise rotation of said member decreases or eliminates said contact so that said rotation can proceed,
- b) pushing down or pulling up a member of said segment, wherein pushing down said member increases contact between a member of said rotational segment and a section of said frame so that said rotation is deterred, wherein said pulling up of said member decreases or eliminates said contact so that said rotation can proceed, and
- c) sliding a controlling switch towards an off or an on position, wherein said switch is connected to another member that can directly block movement of the user-controlled rotational segment,

whereby users can readily relate to the above means as the normal conventional ways of tightening or loosening connections between parts of things.

6. The main frame in claim 4 wherein said rotational segment in (a) contains a ratchet mechanism that defines direction of rotation of said segment, wherein said ratchet mechanism operates through alternating bi-directional motions imparted by a user on an accessible handle grip, wherein movement of said grip can be allowed and deterred by some means.

7. The main frame in claim 4 wherein said clamp in selection (b) comprises:

- a. a top clamping block held by and slidably related in an up and down fashion to said face of said main frame, wherein said top clamping block has an underside surface for bounding the topside of said strap,
  - b. a bottom clamp mate having a top side facing opposite the underside of said top clamping block for bounding the underside of said strap, wherein said bottom clamp has a hinge connection on one end to said main frame and a temporary connecting means on the opposite end also to said main frame,
  - c. wherein said clamping pressure is increased or decreased by increasing or reducing the space between the underside surface of said top clamping block and the topside surface of said bottom clamping mate.
8. The main frame in claim 7 wherein the means of increasing or reducing said space is selected from a group comprising of:
- a. urging toward said top clamping block an adjusting member of said face capable of exerting pressure onto said top clamping block thereby causing the underside of said block to slide normally toward the facing stationary topside surface of said bottom clamping mate, wherein said space is increased by urging away from said top clamping block said adjusting member thereby causing said underside to move normally away from the facing topside surface of said bottom clamping mate,
  - b. i. providing clamp components with dimensions designed to set said space initially at a minimum, and
    - ii. providing compressive springs disposed normally between the topside of said clamping block and said face of said frame held in place by extensions on said face that retract into said topside of said clamping block when the springs are compressed,
    - iii. introducing a strap of certain thickness between said underside of said top clamping block and said topside of said clamp mate,
 whereby the presence of straps directly exerts normal forces onto the adjacent underside of said top clamping block and consequently onto said compressive springs, whereby the resisting compressive forces exerted by said springs allow said topside and underside surfaces to maintain a snug grip on said strap.

9. The main frame in claim 4 wherein said clamp in selection (b) comprises:

- a. a member on said face of said main frame having an underside for bounding the topside of said strap,
- b. a bottom clamp mate having a topside facing opposite said underside of said member on said face for bounding the underside of said strap,
- c. wherein said clamp mate has a hinge connection on one end to a hinge housing and a temporary connecting means to a closure on the opposite end,
- d. wherein said hinge housing and said closure are both held by and slidably related in an up and down fashion to said face of said main frame,
- e. a first compression spring dimensionally capable of receiving a top section of said hinge housing,
- f. a second compression spring dimensionally capable of receiving a top section of said closure,
- g. wherein the bottom ends of said first and second compression springs are supported by said face of said main frame,
- h. wherein the top ends of said first and second compression springs are bordered by stopper members on said hinge housing and said closure respectively,

whereby the presence of straps directly exerts normal forces onto adjacent surfaces including the topside of said bottom clamp mate and consequently onto said first and second compressive springs by virtue of the stopper members bordering the top ends of said springs.

10. The main frame in claim 4 wherein said clamp in selection (b) comprise:

- a. a small flat type spring held on said face of said main frame comprising one of more waves having an underside for bounding the top side of said strap,
- b. a bottom clamp mate having a topside facing opposite the underside of said flat-type spring for bounding the underside of said strap,
- c. hinge means affixed to said face of said main frame,
- d. closure means affixed to said face a predetermined distance from said hinge housing,
- e. wherein one end of said bottom clamp mate is attached to said hinge means,

- f. wherein the other end of said bottom clamp mate can be temporarily connected to said closure means,
- g. wherein one end of said flat-type spring is slidably anchored within borders of said hinge means and the other end is slidably anchored within borders of said closure,
- whereby the presence of straps directly exerts normal forces onto the adjacent underside of said flat-type spring.
11. The main frame in claim 1 wherein said frame face comprises a pair of elongated members spaced apart from each other by mounting means on a base joining bottom ends of said pair and by at least one transverse bar above said base wherein one of said transverse bars contain at least one said retaining means.
12. The main frame in claim 11 wherein said elongated members comprise a plurality of tubes each having predetermined longitudinal cross-sectional dimensions nested together and capable of being extended and retained in the extended position by some means, wherein the pair of nested tubes are spaced parallel to each other.
13. The main frame in claim 12 wherein said pair of nested tubes comprise a pair of three nested tubes wherein one end of the pair of largest tubes is mounted on a base, the pair of second largest tubes is adjustably receivable into the largest pair of tubes by some means, the pair of third largest tubes is receivable into the second largest pair of tubes wherein said pair of third largest tubes is joined to each other on top with one of said transverse bars, wherein the pair of second largest tubes is joined to each other toward its upper end by another one of said transverse bars that contain at least one of said retaining means, whereby the adjustable relationship between the largest and second largest pair of nesting tubes allows said main frame to be used for packs of different heights.
14. The main frame in claim 12 wherein said pair of nested tubes comprise a pair of two nested tubes wherein the pair of larger tubes is joined to each other toward its upper end by one of said transverse bars containing at least one of said retaining means, wherein the pair of smaller tubes

is dimensionally receivable inside said pair of larger tubes, wherein said pair of smaller tubes is joined to each other on top by another one of said transverse bars.

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 15. The main frame in claim 12 wherein the topmost or smallest pair of tubes has a quasi-permanent extendible length, whereby users of substantially differing heights are accommodated by the same main frame without the hassle of adjusting the main frame each time it is extended.

16. The main frame in claim 12 wherein said plurality of tubes include at least two pairs of nesting tubes having a tapering cross-section whereby said tapered form obviates the use of top and bottom tube components for retaining the tubes with each other.

17. The main frame in claim 1 wherein said frame comprises a single column having:

- a) at least one arm of length about the width of a pack, said arms centrally and rotatably arranged cross-wise on the lower end of said column,
- b) bottom retaining means disposed close to each terminal of said arm,
- c) means to anchor said arm after rotating said arm parallel-wise onto said column when not in use,
- d) a main top retaining means toward its upper end,

whereby a single column frame when mounted on wheel means makes for a more compact carrier and can also be adapted for use on a scooter.

18. The main frame in claim 17 wherein length of said arm is apportioned between two short arms, one end of each of said short arms emanate laterally from opposite sides of the lower end of said column, the other end rotatably anchored onto the lower end of said column wherein said short arms are each rotatably urged up towards said column and retained in place by some means when not in use.

19. The main frame in claim 17 further including urging said one arm up a certain distance prior to being rotated to a position parallel said column so that the lower end of said arm stays within the vertical span of said main frame.

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~~20. The main frame in claim 1 further including a supporting base comprising:~~

- ~~a) a base frame of size capable of supporting a pack load from the bottom,~~
- ~~b) a plurality of extensions from said base frame for adapting and mounting to a wheeled support.~~

21. The main frame and base combination in claim 20 wherein said main frame is mounted rotatably between a position normal to said supporting base and a position folded onto said supporting base, further including means to retain said mainframe in said normal and folded positions on said base frame,

whereby when said wheeled support is a bike, the resulting bike pack carrier can carry a pack upright when said main frame is positioned normal to said base frame, whereby said carrier can carry a pack lying on its back when said main frame is folded down onto said supporting base frame, whereby when said supporting means are casters, said folding option allows for compact storage of said combination.

22. The main frame and base combination in claim 20 for use on a bike further including strap retainers on the underside of said base frame whereby a pack's shoulder straps can be utilized to augment means to retain said main frame onto said base frame when said main frame is folded onto it.

23. The main frame and base combination in claim 20 wherein said base frame comprises of slidably related front and back sections to conform to the depth of the loaded pack and to further stabilize the pack from the front.

24. The main frame and base combination in claim 20 for use on a bike further including a front hugger assembly 406 or equivalent mounted rotatably between a position normal to said base frame and a position folded onto said base frame so that the front side of packs of various depths can be further stabilized from the front both in the upright and horizontal positions.



25. The main frame in Claim 1 wherein said location of retaining means is arranged to approximate the location of said attachment means selected from a group comprising of:
1. a) providing a first member having a spring button mounted within, said spring button having a positioning head exposed outwardly through a main aperture on said first member,
  - b) providing a second member having a plurality of secondary apertures along its length, wherein said apertures are facing adjacent the front tip of said positioning head on said spring button on said first member, wherein each secondary aperture defines a specific position of the said first member relative to the second,
  - c) wherein said spring button is capable of engaging into any of said secondary apertures that is directly aligned by some means to said positioning member of said spring button,
  - d) wherein said first and second members are slidably related,
  - e) wherein at least one of said retaining means is directly connected to at least one of said slidable members,
  - f) wherein said means to align said positioning member with a desired secondary aperture is by urging inwardly the front tip of said positioning member out of any said secondary aperture and sliding said first and second members relative to each other until the said desired secondary aperture is aligned with said front tip of said positioning member,
2. a) providing a first member having a spring button or equivalent anchoring rod mounted thereon with its positioning head engaged inwardly through an opening on said first member, said spring button capable of being manipulated from the outside,
  - b) providing a second member having a plurality of secondary apertures along its length and facing adjacent the front tip of said positioning head on said first member wherein each secondary aperture defines a specific relative position between the said first and second members,
  - c) wherein said first and second members are slidably related,
  - d) wherein at least one of said retaining means is directly connected to at least one of said slidable members,

- e) wherein said spring button can engage into any of said secondary apertures that is directly aligned by some means to said positioning member of said spring button,
  - f) wherein said means to align said positioning member with a desired secondary aperture is by urging outwardly the said positioning head and sliding said first and second members relative to each other until the said desired secondary aperture is aligned with said opening on said first member,
- 3. using friction introduced by a lopsided knob head mounted on the first of two slidable members onto a surface of the second of two slidable members wherein at least one retaining means is directly connected to at least one of said slidable members,
  - 4. relying on the connection between said retaining and said attachment means and on the rigidity of said pack to maintain the relative positions between two slidable members wherein at least one retaining means is directly connected to at least one of said slidable members,
  - 5. providing a frame with several retaining means each at different fixed levels,
  - 6. providing a frame with a fixed location of said retaining means for each standard grouping namely: small, medium, and large that can accommodate all packs belonging to any of said grouping,
  - 7. threading method for each column comprising:
    - a. providing a main first tubular member with threaded outside walls,
    - b. providing an adjusting ring with threaded inner walls,
    - c. wherein the threaded outside walls of first tubular member mate with the threaded inner walls of said adjusting ring,
    - d. providing a supporting connector further connected to a retaining means, said connector having a tubular terminal receivable outside said first tubular member,

- e. wherein said tubular terminal also contain a side window into an inner cavity of size just enough to contain the short adjusting ring,
- f. inserting the adjusting ring inside said inner cavity,
- g. threading said first tubular member upward from the bottom of the combination in step (f),
- h. adjusting the height of the retaining means by turning said adjusting ring clockwise or counter-clockwise,

whereby the location of the tubular terminal and consequently the retaining means is defined by the position of said adjusting ring, said position being attained by threading through said side window said ring up or down said first tubular member, and

8. threading method for each column comprising:

- a. providing a main first tubular member with threaded outside walls,
- b. providing a pair of adjusting rings with threaded inner walls,
- c. wherein said threaded outside walls of first tubular member mate with the threaded inner walls of said adjusting rings,
- d. providing a supporting connector further connected to a retaining means, said connector having a tubular terminal receivable outside the first tubular member,
- e. threading the first of two adjusting rings down onto the first tubular member,
- f. receiving the top of first tubular member into the bottom of said tubular terminal until said terminal rests on top of first of two adjusting rings,
- g. threading the second of two adjusting rings down onto the first tubular member until it is adjacent the top of said tubular terminal,

whereby the location of the tubular terminal and consequently the retaining means are defined by the positions of the two adjusting rings bordering the top and bottom of said tubular terminal, said positions being attained by threading said adjusting rings up or down said first tubular member,

whereby when said retaining means can be made available at locations approximating as closely as possible said attachment means on said pack, packs of various heights can be accommodated.

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26. The main frame in claim 1, further including a shoulder harness with top and bottom terminals capable of being secured to strategic junctions on said main frame.

Sub 37 27. A base frame for carrying a pack providing a top upon which the pack rests comprising:

- a) slidably related front and back sections,
- b) wherein said front section has an underside where at least one support member is attached,
- c) wherein said back section has an underside where a plurality of support members is attached,
- d) wherein said front and back sections each contain a cavity capable of lodging an elastic member wherein one end of said elastic member is suspended inside said front section while the other end of said elastic member is suspended inside said back section,
- e) wherein said front section further includes a substantially upright topside extension at its proximal end,

whereby pressure from the load directed normally to said topside extension automatically extends said elastic member and draws out said front section including said support legs attached to said underside of said front section thereby providing a stable support at all times with minimum or no effort on the part of the user.

28. The base frame in claim 27 wherein said back section of said base frame is permanently mounted to the bottom of a piece of luggage or backpack.

29. The base frame in claim 27 wherein said topside extension is collapsible by some means so that very deep packs beyond the extending capacity of said base frame can be adequately supported.

Sub 34 30. A base frame for carrying a pack providing a top surface upon which the pack rests comprising:

- a) slidably related front and back sections,
- b) said front section having an underside wherein at least one support member is attached,
- c) said back section having an underside wherein a plurality of support members is attached,
- d) wherein one of said sections contain at least one substantially front-ward directed series of wavy indentations, each indentation having a crest and a trough,

- e) wherein the other section contains at least one flexing button comprising:
  - a) a button head with a smoothly curved side and straight side opposite each other,
  - b) an elongated section or neck extending substantially in the same general direction as said wavy indentation,
- f) wherein said other section in (e) also contains a separate rigid control member with one side disposed adjacent the straight side of said button head having a control contact protrusion terminating in a straight surface slidably related against said straight side of said button head, wherein said control member is externally controlled by some means to freely and fixedly lodge and dislodge said button from said trough of one of said indentations, whereby said sections are free to slide past each other when said button head is freely able to dislodge from any indentation.

- 31. The base frame in claim 30 wherein said neck of said button further includes a smoothly curved on/off protrusion on the same side as the said straight side of said button head, wherein said rigid control member also further includes an on/off extension on one side adjacent said on/off protrusion on said neck, whereby said on/off protrusion and on/off extension slidably fixes and frees said button head lodged in said trough of said indentation by virtue of the control contact protrusion slidably blocking and unblocking in conjunction the straight side of said button head.
- 32. The base frame in claim 30 wherein the blocking and unblocking operation of said control contact protrusion disposed on said rigid control member includes the use of a compressible spring disposed inside a cavity in the section that houses said rigid control member, wherein said spring is compressible by the user-controlled rigid member as said control contact protrusion of said rigid member is moved to unblock said straight side of said button head thereby rendering said front and back sections of said frame free to be extended apart, wherein said control contact protrusion of said rigid member will automatically move back to block straight side of said button head when said compression is released.

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- 33. A base frame for carrying a pack providing a top surface upon which the pack rests comprising:
    - a) slidably related front and back sections,

- b) said front section having an underside wherein at least one support member is attached,
- c) wherein one of said sections contain at least one substantially front-ward directed series of wavy indentations, each indentation having a crest and a trough,
- d) wherein the other section contain:
  1. at least one flexing button having a smoothly curved button head fixedly connected by an elongated member to a user-controlled box,
  2. a smoothly curved channel,
  3. an elastic member or spring disposed inside a cavity wherein said elastic member is compressible by said user-controlled box,

wherein said button and said elongated member can retract along said smoothly curved channel as said user-controlled box is pulled toward said elastic member, whereby said sections are rendered free to slide past each other when said button is in the retracted position.

Sub 136 34. A base frame for carrying a pack comprising:

- a. a top surface of surface of sufficient size upon which the load rests,
- b. an underside having a plurality of support members proximal to the rear edge of said base frame wherein said support members are equipped with swiveling casters,
- c. an underside having at least one support member proximal to the front edge of said base frame wherein said support members are equipped with wheels selected from a group comprising of ball bearing glides and swiveling casters,

whereby a pack carrier having said base frame can be easily maneuvered along narrow aisles and other tight spots in school buses, inside school lockers, closets, and can provide the user easy access to the contents of the pack thereon.

35. The base frame in claim 34 wherein said underside in components (b) and (c) are formed as separate units.

Sub 137 36. A comfortable padded support of resilient material for the rigid main frame of a pack carrier, said support spanning a section of said main frame adjacent the load and disposed by some means selected from a group comprising of:

- a. slipping an already looped cushioning envelope containing said resilient material over said main frame down to the lower section thereof,
  - b. enveloping the lower section of said main frame directly by fastening together the free edges of a wrap containing said resilient material by using laces, buckles, buttons, hook and loop fasteners, zippers or other state of the art means,
  - c. attaching a layer of resilient material directly onto strategic locations on said main frame using laces, clasps, clamps, buttons, hook and loop fasteners, zippers and the like,
  - d. enveloping existing individual columns of said main frame with separate cushioning wraps,
  - e. providing a semi-rigid or similar resilient plastic integral to the main frame,
- whereby any pack loaded onto said main frame can be carried comfortably in the backpack mode.

37. A padded back support used in conjunction with the rigid main frame of pack carriers and any pack detached therefrom carried against one's back comprising:

- a. a layer of resilient material having two faces bordered by two long and narrow sides and narrow top and bottom sides encased in fabric, plastic, vinyl, rubber, or similar flexible material mountable on the carrier by some means,
- b. means on the said top side for hanging the encased resilient material in (a) onto any backpack so that said support can be used apart from its pack carrier,
- c. means on the lower section of both said long sides of the encased resilient material in (a) for keeping the said support in place relative to the backpack,

whereby an added layer of cushion between any backpack or any rigid main frame of pack carriers and the back of the user provides more comfort and less fatigue and strain on the user's back because the cushion absorbs some of the inertia directed towards the user's back as the user moves, and whereby when more desirable features are added to said support, said support can easily convert a plain carrier into an ergonomic pack carrier and a plain pack into an ergonomic backpack.

38. The back support in claim 37 further including a supplemental cushion adjustably positioned on the face of the casing whereby said support further reduces strain on the user's back by distributing some of the weight towards the lumbar region of the user.
39. The back support in claim 37 further including a waist/hip belt attached to the lower section of both sides of the casing in (a), whereby said belt can double as a backpack retainer and a stabilizer.
40. The back support in claim 37 further including a shoulder harness attached to the lower section of both sides of said casing in (a) whereby said harness can be used for packs without shoulder straps or to substitute for a broken or worn out strap on a backpack.
41. The back support in claim 37 further including a pocket on a face of said casing wherein said pocket has a slit on the lower section of both sides for storing unused attachments from the other face of said casing.
42. The back support in claim 37 wherein said means for hanging onto any backpack comprise at least one loop structure on top, said loops capable of snugly receiving a pair of padded shoulder straps.
43. The back support in claim 37 wherein said means on the lower section of each said long side is a slit of size capable of receiving the lower unpadded section of a backpacks shoulder straps whereby said support is retained and urged closer to the backpack as the shoulder straps are used.
44. The back support in claim 37 further including another layer of casing of about the same size as the encased resilient material and joined to the latter at each of their respective long sides so that a loop is formed whereby the resulting looped support can be easily slipped in and out of the main frame of the pack carrier.



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 45. A back support for use in a pack carrier comprising a layer of resilient material like foam, rubber, encased air, cotton, fiberfill, or other similar material having a convex component whose lateral cross-section is of shape approximating all or a portion of the thoracic and upper lumbar regions of the spinal curvature as defined by correct posture of the user's body, whereby the presence of said convex component at the right place and the weight of the load against the user's shoulders direct a component of said weight toward the lumbar region urging the user to straighten up and allow user's back to approach his or her naturally correct spinal curvature, thus, encouraging and promoting good posture and less fatigue while carrying said pack carrier.

46. A back support in claim 45 wherein said lateral cross-sectional shape of said convex component ranges from segments of a teardrop to segments of a circle.

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47. A back support in claim 45 wherein said convex component is detachable and adjustably mounted on the face of the pad adjacent said user's back by means selected from a group comprising of:

- a) using hook and loop fasteners wherein the hook component is on the side opposite the exposed convex face of said convex component and the loop component is on the face of the pad adjacent the user's back, and
- b) providing a very stretchable pocket on the face of the pad adjacent the user's back, whereby when the hook and loop fastening means is selected and a loop component is also affixed to the back face of any backpack, the convex component of the back support can also be used in conjunction with such backpack.

48. A lumbar support made of resilient material like foam, rubber, encased air, cotton, fiberfill, cotton or similar material of lateral cross-sectional shape ranging from a teardrop to a circle and segments therefrom wherein said support contain means of attachment to a face of a padded back support of a pack carrier or directly onto a face of any pack detached from the carrier.

49. The lumbar support in claim 48 wherein said first attachment means is selected from a group comprising of:

a) hook and loop fastener, and

b) a loop structure on each of the junctures between the exposed convex face and lateral face of said convex component,

whereby said loop structure can readily receive the already existing lower shoulder straps of any backpack or any supplemental strap-like second attachment means affixed onto any pack that does not have any and whereby attaching a loop component of the hook and loop fastener onto a face of a pack is also simple and easy.

50. A method of adjusting the relative positions of a pair of nesting tubes in any telescoping assembly wherein said positions are capable of being held by a snap button disposed inside the inner tube of said pair of nesting tubes, wherein the positioning member of said snap button is engaged in an aperture on said inner tube and further capable of engaging into another aperture on the outer tube of said pair of nesting tubes comprising:

- a) providing a catching extension of predetermined shape and dimension behind the positioning member of said snap button, so that said extension can latch on to another bumper structure of shape and dimension determined in conjunction with those of said catching extension,
- b) providing reinforced anchoring means for said snap button to eliminate the possibility of displacement when said positioning member is depressed for an extended time,
- c) providing a third elongated member dimensionally receivable inside said inner tube, said elongated member having a bottom terminal containing said bumper structure,
- d) delivering said third elongated member into said inner tube to reach a maintained position where its said bumper structure is capable of holding onto said catch extension when said extension is introduced,
- e) introducing said catch extension by pressing said positioning member of said snap button inward until the extension latches onto the said bumper structure,
- f) moving inner and outer tubes relative to each other until the desired position is reached,
- g) withdrawing said third elongated member from said inner tube to release said bumper structure from said catch extension,

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h) finely adjusting positions of the inner and outer tubes relative to each other until said positioning member engages into the nearest aperture on said outer tube, whereby this method when applied to an extendible unit with a plurality of tubular columns each of which having at least two tubular nesting tubes that can only be extended if done simultaneously as by lifting a transverse bar connecting their top terminals like that required of a telescoping pack carrier, easily enables only one person with at least one hand to perform height adjustments.

51. Method in claim 50 wherein the combination of said catch extension and said bumper structure is selected from a group comprising of:

- a) catch 54-2 and bumper 64-2 or their equivalents,
- b) catch 290 and bumper 289 or their equivalents, and
- c) catch 292 and bumper 292 or their equivalents.

52. A method of providing a quasi-permanent terminal extended height of an extendible column comprising:

- a) providing a first tubular member having at least one terminal cavity along its length capable of receiving a positioning member disposed in another tubular member coming its way,
- b) providing a second tubular member dimensionally receivable inside said first tubular member having a plurality of apertures strategically disposed along its body, each aperture defining a particular desired extended height of said extendible column,
- c) providing a control rod dimensionally receivable inside said second tubular member with at least one positioning member disposed along its length,
- d) providing a structure for lifting said second tubular member,
- e) assembling said above provisions by some means wherein the control rod is received inside the second tubular member which is received inside first tubular member,

wherein at least one of said positioning members is made communicable at least one at a time by the user to at least one of several height defining apertures in said second tubular member, wherein any of said positioning member engaged in one respective height-defining aperture of said second tubular member is further communicable to said terminal cavity in said first tubular

member when the second tubular member is lifted out of the first tubular member thereby deterring further extension of said second tubular member.

whereby when the above method is applied to a telescoping main frame of a pack carrier, one pack carrier alone can accommodate kids and adult alike without the extra effort involved in the constant re-adjusting of the handle height each time the telescoping main frame is extended.

53. Method in claim 52 further including:

- a) a separate snap button disposed below said control rod having a positioning member engaged in another aperture in said second tubular member that defines an extended column height that is higher than that derived from the positioning members on said control rod,
- b) means to anchor said control rod when none of its positioning members are active, whereby using separate snap button eliminates the otherwise needed extra length of said control rod to effect the same height options, thus, minimizing weight of the total assembly.

54. Method in claim 53 wherein said means to anchor said rod comprise an anchoring aperture disposed above the topmost said aperture on said second tubular member wherein said anchoring aperture is in the position of engaging the topmost said positioning member in said control rod when none of the positioning members in said rod are engaged in any height defining aperture wherein said anchoring aperture is not communicable with said terminal cavity in said first tubular member, so that said rod is anchored even though none of its positioning members are engaged in any terminal aperture, whereby using just an additional aperture is an effective means of anchoring said rod.

55. Method in claim 52 wherein said plurality of apertures on second tubular member is arranged in a straight vertical line and wherein said positioning members in said control rod are arranged also in a straight vertical line adjacent or as close as possible and parallel said apertures on second tubular member and wherein said control rod is manipulated in an up or down direction to engage at least one said positioning member into one of the height-defining apertures.

56. Method in claim 52 wherein the positioning members on said control rod are arranged in a spiral manner along the length of said rod, wherein each positioning member is on the same horizontal plane as its respective height defining aperture on said second tubular member, wherein said control rod is manipulated in a clockwise or counterclockwise direction to engage at least one said positioning member into one of the height defining apertures on the second tubular member.
57. Method in claim 52 wherein a plurality of terminal cavities is arranged in a spiral manner along the length of said first tubular member, wherein said height-defining apertures are arranged along the same horizontal plane along the lower end of said second tubular member, wherein said control rod has at least one positioning member on the same horizontal plane as said height defining apertures, wherein said control rod is manipulated in a clockwise or counterclockwise direction to engage the one said positioning member into one of the height defining apertures wherein each height-defining aperture on second tubular member is communicable to a specific spirally disposed terminal cavity on the first tubular member.
58. Method in claim 52 wherein the positioning members on said control rod are arranged in a spiral manner along the length of said rod, wherein each positioning member is on the same horizontal plane as its respective height defining aperture on said second tubular member, wherein said second tubular member is manipulated in a clockwise or counter-clockwise direction to engage at least one said positioning member into one of the height defining apertures on the second tubular member.
59. Method in claim 52 wherein a plurality of terminal cavities is arranged in a spiral manner along the length of said first tubular member, wherein said height-defining apertures are arranged along the same horizontal plane along the lower end of said second tubular member, wherein said control rod has at least one positioning member on the same horizontal plane as said height-defining apertures, wherein said second tubular member is manipulated in a clockwise or counter-clockwise direction to engage the one said positioning member into one of the height

defining apertures, wherein each height-defining aperture on the second tubular member is communicable to a specific spirally disposed terminal cavity on the first tubular member.

60. A method for providing an accessory to an extendible columnar frame made from a plurality of shorter linked sections comprising:

a) providing a low-resisting extendible layer made up of collapsible divisions selected from a group comprising:

1. uncovered helical spring,
2. covered helical spring,
3. accordion-like collapsible tube, and
4. nesting tapered concentric tubes,

of dimensions capable of enveloping said extendible columnar frame wherein top and bottom terminals or said spring each have means of attachment to a respective predetermined point on said extendible columnar frame,

b) providing said extendible columnar frame with receivers at each of said predetermined points wherein said predetermined points are separated far enough to effect a visually discernible change on the appearance of said frame when said frame is extended and retracted,

c) providing said extendible columnar frame with means for being extended and retracted,

d) installing said extendible layer comprising one of the following:

1. winding coils of said layer around the section of said columnar frame spanned by respective receivers of top and bottom terminals of said extendible layer,
2. directly nesting said columnar frame inside said extendible layer before mounting any transverse bar above said top terminal,

e) attaching said top and bottom terminals of said extendible member to their respective receivers,

f) expanding and contracting said extendible columnar frame,

whereby said extendible member can be fabricated in many sizes, shapes, designs, and colors so that pleasure can be derived from the changing sight, whereby the said accessory can be used in conjunction with several articles of manufacture especially wheeled backpacks and luggage, and

cargo carriers with retractable handles, offering a convenient source of amusement to school kids and travelers.

61. Method in claim 60 wherein the link between the said receivers on said columnar frame and said attachment means on said terminals of said extendible layer is embodied in a separate detachable adapting holder whereby detaching said adapting holders eliminates the possible unnecessary presence of extensions on the top and bottom receivers of said extendible columnar frame on the event that said extendible layer is not installed, whereby said separate holders and extendible layer may be fabricated in unlimited shape, size, form, design, and color to complement each other thereby providing more amusement to the user.
62. Method in claim 60 wherein said extendible columnar frame is a portion of one of a pair of columns in a telescoping handle assembly upward from the level of the highest retaining means for a loaded pack to the handle bar of said telescoping assembly.
63. Method in claim 58 further including additional provisions for lifting a backpack's shoulder straps used in conjunction with a pack carrier that has at least one column of extendible tubular members flanked on top by a lifting member, said additional provisions comprising:
  - a) providing a user-accessible void space on each of said collapsible divisions on said extendible layer, said void space of size enough for containing a separate connector;
  - b) providing for each of said columnar frame said connector of sufficient length based on the depth of the user's body,
  - c) providing and installing strap attachment means to attach and distribute one end of all said connectors onto the shoulder straps of said backpack on said pack carrier,
  - d) setting the span of said predetermined points to include at least a portion of said column of extendible tubular members located above the top level of said backpack on said carrier, wherein said portion of span is sufficient for said extendible layer to impart the necessary lifting force on said shoulder straps,
  - e) determining the specific collapsible division for attaching one end of said connector along the length of said extendible layer upon consideration of the length of shoulder straps

needed by the user and of the maximum length of needed tie that can be camouflaged by said extendible layer,

- f) attaching one end of said connector to said strap attachment means on shoulder straps,
- g) threading the free end of said tie upward into a said void starting from the void space of the collapsible division closest to the already attached end of said tie when said shoulder strap is at its desired lifted position all the way up through each void on each succeeding division until said specific collapsible division is reached,
- h) attaching the remaining free end of said connector to said specific collapsible division, whereby the results obtained by manipulating said installed provisions provide means for communicating the lifting force imparted by the user on said lifting member, whereby lifting the shoulder straps before the pack carrier is inclined back for rolling on a surface prevents said shoulder straps from touching the ground, thus, getting dirty and wearing out prematurely.

64. A selection of shoulder adaptors used as strap attachment means in conjunction with an apparatus having a connector with proximal and distal ends for lifting the shoulder straps of any piece of luggage with wheel means and a handle assembly extendible by lifting a transverse member connected on top of said assembly comprising:

- a) more or more pads installed in a wrapping manner around each shoulder strap at predetermined locations on said shoulder strap, wherein said pad contains means for attaching to the proximal end of the connector of said apparatus,
- b) one or more buckle-like articles for each shoulder strap, said article having at least one slit of size capable of snugly receiving a padded shoulder strap across its body, said article installed by freeing open the buckle connection of said shoulder strap, slipping the open end of said strap through said slits, and positioning said article at a predetermined location along said shoulder strap, wherein said pad contain means for attaching to the proximal end of the connector of said apparatus,
- c) one or more removable clamping articles for each shoulder strap affixed at predetermined locations along the length of said strap wherein said clamping articles contain means for attaching to the proximal end of the connector of said apparatus,



- d) a looped member for each shoulder, the loop being of size capable of receiving a padded shoulder strap so that said member and said strap becomes slidably related, wherein said looped member contains means for attaching to a connector of said apparatus, whereby the use of detachable, movable, and transferable adaptors allow the user the flexibility of providing customized strap lifting capability to any backpack of their choice.
65. The selection of strap adaptors in claim 64 further including means for smooth movement of said proximal end of said connector between points of farthest and closest distance from the distal end of said connector, whereby allowing said movement of said proximal end of said connector minimizes the exposed slack of said connector for any desired lifted height of the shoulder strap when the said column of tubular members is retracted.
66. The selection of adaptors in claim 65 wherein said means for smooth movement is a flexible member running between the ends of the one-piece or two-piece adaptors, wherein a ring is received outside and capable of gliding along said flexible member, whereby the proximal end of the connector attached to said ring can move in conjunction with said ring.
67. The selection of adaptors in claim 65 wherein said means for smooth movement is a flexible member having a groove with a constricted top running between the ends of the one-piece or two-piece adaptors for retaining a tiny wheel with an axle that has means exposed outside said groove for attachment to the proximal end of the connector.
68. The selection of strap adaptors in claim 62 further including apparatus for lifting a pack's shoulder straps comprising:
- an extendible flexible cord having a first and second terminals,
  - wherein said connector is the first terminal of said cord,
  - wherein the second terminal of said cord is attached to a member of the handle assembly that extends a sufficient distance upward from said handle straps when the transverse lifting member is lifted.

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69. A method for transforming a pack carrier having a main frame that could stay substantially upright and a base that is substantially level, said base having an underside with a plurality of support members into a backrest with seat comprising:

- a) providing a first sheet of material of sufficient size for use as said seat and to be retained by some means behind a load on said carrier when not in use,
- b) providing attachment means for said seat on said carrier,
- c) providing means for said main frame to incline forward when said seat is in use,
- d) attaching said seat,
- e) inclining said main frame,
- f) sitting on said seat with back resting behind said main frame,
- g) disposing of said seat when not in use,
- h) extending out said seat for use,

whereby the transformation allows users to sit comfortably on the floor or ground when they so desire.

70. Method in claim 69 wherein

- a. the method of attaching said seat to said carrier comprise tying using a cord, ring or similar looped material at its distal corners to a lower section of said main frame of said carrier wherein said tie can freely move up and down a certain predetermined distance along said main frame,
- b. said main frame further includes a cushioning envelope with an open bottom surrounding part of said main frame adjacent to the load, and
- c. the method of concealing said seat when not in use comprises urging up said seat through the open bottom of said cushioning envelope, said cord, ring or similar looped material freely moving up said main frame with said seat until said seat is totally contained inside said cushioning envelope,

whereby said method allows user easy means to replace a worn-out seat as well as easy means to conceal said seat, and whereby the user's clothes are not exposed to the dirty underside of a used seat when the carrier is used subsequently in the backpack mode.

71. Method in claim 69 further including:

- a) appending a second sheet of about the same size to the front edge of said first sheet of material to produce a double-layered seat,
- b) providing attachment and retaining means for said double-layered seat on said carrier,
- c) folding down said second sheet to the underside of first sheet,
- d) sitting on top side of first sheet,
- e) folding up second sheet toward top side of said first sheet,
- f) bringing up unit resulting from step (e) towards main frame where it is retained by some means,

whereby the appended said second sheet provides a protective ground cover for the underside of said first sheet so that dirt do not get onto the user's clothes thereafter when the carrier is used in the backpack mode.

72. Method in claim 71 further including a cushioning envelope surrounding part of said main frame adjacent to the load wherein said attachment means for said double layered seat is selected from a group comprising of:

- a) fastening the rear end of said double-layered seat directly onto the bottom edge of the padding of said carrier by sewing, buttoning, using hook and loop fasteners, or other state of the art means, and
- b) tying the rear corners of said double-layered seat to the lower section of said main frame, wherein said retaining means is selected from a group comprising of:
  - a) attaching said double-layered seat directly onto the exposed side of the cushioning envelope of said main frame, using buttons, ties, hooks, hook and loop fasteners, or other state of the art means,
  - b) attaching said double-layered seat directly to the main frame just above the cushioned section using buttons, ties, hooks, hook and loop fasteners, or other state of the art means.

73. Method in claim 69 wherein means for inclining said main frame is selected from a group comprising of:

- a) collapsing support members in front of said carrier,

- b) arranging a fixable hinged connection between said base and said main frame,
- c) designing base support members to accommodate rocking or rotational motion in conjunction with reinforcing the connection between the main frame and the base.

74. Method in claim 73 wherein provision and operation of said fixable hinged connection between said base and said main frame comprise:

- a) providing the following on one part of said hinged connection:
    - 1. a circular hub having a normal centrally disposed cylindrical pin frame and a side window, said pin frame defining the axis of rotation of said hinged connection,
    - 2. a spring biased plug 189L or 189L' retained normally and rotatably on said pin frame in said hub by a compression spring, said plug having a locking member on one side and a button on one end, said button dimensionally receivable into said side window of said hub,
  - b) providing the following on the other part of said hinged connection:
    - 1. a circular central recess having a central aperture for receiving an axis pin, said recess of size capable of receiving the rotating span of said locking member of said plug when said button of said plug is depressed,
    - 2. notches or recess extensions on the perimeter of said central recess, each capable of mating with said locking member when said button is not in its depressed position, wherein each notch corresponds to a specific relative position between said base and said frame,
  - c) providing a hinge pin going through said pin frame and through said central aperture on said central recess, said pin being capped in place at both ends,
  - d) depressing and maintaining depressed position of said button of said plug disposed outside said side window of said hub,
  - e) urging one part of the said hinge connection to rotate past the other part until the desired relative position of both parts is reached after which pressure on said button is released and said locking tooth locks into position inside one of said recess extension,
- whereby said operation is easy, quick, flexible and lockable in the inclined and fully folded positions.

75. A clasping article 901 and its equivalent for temporarily connecting side by side at a specific orientation a first tube to a second tube comprising:

- a) a short first tubular frame having a first opening running throughout its longitudinal side oriented normal to the orientation of said second tube of width capable of forcibly receiving a first tube urged in parallel to the orientation of said opening, said first tubular frame having inner dimensions capable of snugly clasping said first tube,
- b) a short second tubular frame having a second opening capable of forcibly receiving said second tube urged in parallel to the orientation of said second tubular frame, said second tubular frame having inner dimensions capable of snugly clasping said second tube,
- c) a short third tubular frame having a third opening capable of forcibly receiving said second tube urged in parallel to the orientation of said third tubular frame, said third tubular frame having inner dimensions capable of snugly clasping said second tube,
- d) wherein the bottom side of said second tubular frame opposite said second opening is permanently attached to the top of the first opening in said first tubular frame,
- e) wherein the top side of said third tubular frame opposite said third opening is permanently attached to the bottom of the first opening in said first tubular frame directly below said second tubular frame,

so that the first tube can be forcibly urged between second and third tubular frames before going through the said first opening and finally inside first tubular frame, and so that the second tube can be forcibly urged into second and third openings simultaneously and finally inside both second and third tubular frames,

whereby two tubes can be temporarily connected side by side at a fixed orientation without the use of nuts and bolts, screws or tools, thus, providing a convenient means to temporarily retain mainframes of pack carriers in a desired position.